CLAIMS

WHAT IS CLAIMED IS:

1. A composition for exfoliation agent comprising:
(a) a salt formed of hydrofluoric acid and a base containing no metal ion;
(b) one or more water soluble organic solvents;
(c) a sugar alcohol; and
(d) water,
wherein the pH of the composition is above 8, and the composition is effective in exfoliating resist residues.

2. The composition of claim 1, wherein the said composition comprises:
0.001-1 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;
50-98 % by weight of the composition of the water soluble organic solvents;
0.01-10 % by weight of the composition of the sugar alcohol; and
balance of water.

3. The composition of claim 1, wherein the said composition comprises:
0.005-0.5 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;
60-95 % by weight of the composition of the water soluble organic solvents;
0.05-5 % by weight of the composition of the sugar alcohol; and
balance of water.

4. The composition of claim 1, wherein the said composition comprises:
0.05-0.3 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;
75-95 % by weight of the composition of the water soluble organic solvents;
0.1-3 % by weight of the composition of the sugar alcohol; and
balance of water.

5. The composition of claim 1, wherein the salt formed of hydrofluoric acid and a base containing no metal ion is ammonium fluoride.

6. The composition of claim 1, wherein the sugar alcohol is xylitol.

7. The composition of claim 1, wherein the pH of the said composition is from about 8.5 to about 10.

8. The composition of claim 1, wherein the composition further comprises a surfactant in an amount sufficient to improve the wetting property of the composition.

9. A method of exfoliating the resist residues resulting from dry etching and plasma ashing, comprising:

providing a substrate with resist residues resulting from dry etching and plasma ashing;

contacting the substrate with the composition of claim 1 for a time and at a temperature sufficient to cause the composition to substantially remove the resist residues; and

rinsing the substrate.

10. A composition for exfoliation agent comprising:

(a) a salt formed of hydrofluoric acid and a base without metal ion;

(b) one or more water soluble organic solvents;

(c) a sugar alcohol;

(d) water; and

(e) hydrofluoric acid,

wherein the pH of the composition is above 8, and the composition is effective in exfoliating resist residues.

11. The composition of claim 10, wherein the said composition comprises:

0.001-1 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;

50-98 % by weight of the composition of the water soluble organic solvents;

0.01-10 % by weight of the composition of the sugar alcohol;

0.001-1 % by weight of the composition of hydrofluoric acid; and

balance of water.

12. The composition of claim 10, wherein the said composition comprises:

0.005-0.5 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;

60-95 % by weight of the composition of the water soluble organic solvents;

0.05-5 % by weight of the composition of the sugar alcohol;

0.005-0.5 % by weight of the composition of hydrofluoric acid; and

balance of water.

13. The composition of claim 10, wherein the said composition comprises:

0.05-0.3 % by weight of the composition of the salt formed of hydrofluoric acid and a base containing no metal ion;

75-95 % by weight of the composition of the water soluble organic solvents;

0.1-3 % by weight of the composition of the sugar alcohol;

0.05-0.3 % by weight of the composition of hydrofluoric acid; and

balance of water.

14. The composition of claim 10, wherein the salt formed of hydrofluoric acid and a base containing no metal ion is ammonium fluoride.

15. The composition of claim 10, wherein the sugar alcohol is xylitol.

16. The composition of claim 10, wherein the pH of the said composition is from about 8.5 to about 10.

17. The composition of claim 10, wherein the composition further comprises a surfactant in an amount sufficient to improve the wetting property of the composition.

18. A method of exfoliating the resist residues resulting from dry etching and plasma ashing, comprising:

providing a substrate with resist residues resulting from dry etching and plasma ashing;

contacting the substrate with the composition of claim 10 for a time and at a temperature sufficient to cause the composition to substantially remove the resist residues; and

rinsing the substrate.